A XAS STUDY OF Ru DOPED N=1,2 RUDDLESDEN POPPER MANGANITES AND $Ca_{2.5}Sr_{0.5}GaMn_2O_8$.

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9.7 cm

We report on the results of XAS studies at the Mn:$L_{2,3}$, Ru:K and O:K edges of novel manganites, $Sr_2Mn_{0.5}Ru_{0.5}O_4$, Sr_3MnRuO_7 and $Ca_{2.5}Sr_{0.5}GaMn_2O_8$. Measurements were carried out on polycrystalline powder samples at room temperature. From the analysis, values of the mean Mn valence amounting to 3.42(5) for bilayer Sr_3MnRuO_7 and 3.08(5) for single layer $Sr_2Mn_{0.5}Ru_{0.5}O_4$ are obtained. The corresponding Ru valences are 4.58(5) and 4.92(5), respectively. This indicates that Ru doping gives rise to a decrease of Mn valence, whereas Ru valence increases, compared to Mn^{4+} and Ru^{4+} in undoped compounds. Measurements on $Ca_{2.5}Sr_{0.5}GaMn_2O_8$ show the Mn mean valence of 3.50(5), which agrees with stoichiometry and, consequently, no deviation from nominal oxygen stoichiometry is concluded. A relation of the results to bulk magnetic properties of the compounds is discussed.

13.4 cm

Subject category :

3. Transition Metals, Alloys and Compounds

Presentation mode :
poster

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